

We claim:

1. A computerized system comprising:

a mechanism designed to access and store information regarding context information and notification parameters;

5 at least one notification source, each source designed to generate notifications;  
at least one notification sink, each sink designed to receive the notifications; and,  
a notification manager designed to convey the notifications generated by the at least one notification source to the at least one notification sink based on the information stored in the mechanism.

10 2. The system of claim 1, wherein the context information and notification parameters are for an entity.

3. The system of claim 2, wherein the entity comprises one of a user, an agent, a process, a server, a computer, a machine, a company, an organization, a business, a computer program, a service, and a thread.

15 4. The system of claim 1, wherein the notifications generated by the at least one notification source are intended for an entity.

5. The system of claim 1, wherein the notifications received by the at least one sink are to be provided to an entity.

6. The system of claim 1, wherein the mechanism comprises a notification parameters store storing default notification preferences for an entity as a profile.

7. The system of claim 1, wherein the mechanism comprises a user mechanism.

8. The system of claim 7, wherein the user mechanism comprises a user context  
5 mechanism designed to determine a current context of the user, based on at least one context source.

9. The system of claim 8, wherein the at least one context source comprises one or more  
of: visual information of the user, desktop information of the user, personal-information-  
manager (PIM) information of the user, current time and day, mobile device usage of the  
10 user, and location of the user.

10. The system of claim 8, wherein the context mechanism is more specifically designed  
to determine the current context based on the at least one context source by utilizing one  
or more of: a statistical model, a profile, direct access of user location and activity, and  
real-time user specification of user state.

11. The system of claim 1, wherein the notifications generated by the at least one  
15 notification source comprises one or more of: e-mail, instant messaging, system  
messages, automated assistance, results from persistent, ongoing queries to one or more  
search facilities or services, updates to the number or content of documents available in a  
shared file system, updates about organizational information, information that comes

available that is related to a specified content, document or topic, Internet-related information and news services, people availability, location, proximity, scheduling queries, proximities and locations of companies and organizations.

12. The system of claim 1, wherein each notification source has parameters associated  
5 with it representing at least one of:

an importance of a current notification generated by the notification source indicating value of information contained in the current notification;

a time criticality of the current notification generated by the notification source  
indicating time-dependent decay of the value of the information contained in the current  
10 notification.

13. The system of claim 1, wherein each notification source has parameters associated  
with it representing at least one of:

a message class of a current notification generated by the notification source  
indicating a type of communication of the current notification;

15 a relevance of the current notification indicating a likelihood of the relevance of information contained in the current notification;

a novelty of the current notification indicating a likelihood of whether an entity already knows the information; and,

a fidelity of the current notification indicating a loss of value to the entity of the  
20 information upon truncation of the information.

14. The system of claim 1, wherein the at least one notification source comprises at least one of: a pull-type notification source, and a push-type notification source.

15. The system of claim 1, wherein the at least one notification sink comprises one or more of: a desktop, a cellular phone, a pager, and an automotive computerized device.

5 16. The system of claim 1, wherein each notification sink has parameters associated with it representing at least one of:

a device class of the notification sink indicating a type of device that the notification sink is;

10 a transmission reliability of the notification sink indicating a likelihood that an entity will receive information contained within a notification conveyed to the notification sink;

a cost of communication of the notification sink indicating a communication cost incurred by the entity when receiving information contained within a notification conveyed to the notification sink; and,

15 a cost of disruption of the notification sink indicating a disruption cost incurred by the entity when receiving information contained within a notification conveyed to the notification sink.

17. The system of claim 1, wherein the notification manager is more specifically designed to determine which of the notifications from the at least one notification source should be conveyed to which of the at least one notification sink, based on the  
20 information stored by the mechanism.

18. The system of claim 1, wherein the notification manager is further designed to perform a decision-theoretic analysis of the notifications from the at least one notification source based on the information stored by the mechanism to determine which of the notifications from the at least one notification source should be conveyed to which of the at least one notification sink, such that the notification manager is designed to infer encountered uncertainties.

19. A computerized system comprising:

a user mechanism designed to store information regarding notification parameters, and comprising:

10 a user notification parameters store designed to store default notification preferences for a user;

a user context mechanism designed to determine a current context of the user, based on at least one context source;

15 at least one notification source, each source designed to generate notifications intended for the user;

at least one notification sink, each sink designed to provide the notifications to the user; and,

20 a notification manager designed to convey the notifications generated by the at least one notification source to the at least one notification sink based on the information stored in the user mechanism by performing a decision-theoretic analysis.

20. The system of claim 19, wherein the user context mechanism is more specifically designed to determine the current context based on the at least one context source by

utilizing one or more of: a statistical model, a user profile, direct access of user location and activity, and real-time user specification of user state.

21. The system of claim 19, wherein each notification source has parameters associated with it representing at least one of:

5        an importance of a current notification generated by the notification source indicating value of information contained in the current notification to the user;

         a time criticality of the current notification generated by the notification source indicating time-dependent decay of the value of the information contained in the current notification to the user;

10       a message class of a current notification generated by the notification source indicating a type of communication of the current notification;

         a relevance of the current notification indicating a likelihood of the relevance of information contained in the current notification to the user;

         a novelty of the current notification indicating a likelihood of whether the user  
15       already knows the information; and,

         a fidelity of the current notification indicating a loss of value to the user of the information upon truncation of the information.

22. The system of claim 19, wherein the at least one notification source comprises at least one of: a pull-type notification source, and a push-type notification source.

20       23. The system of claim 19, wherein each notification sink has parameters associated with it representing at least one of:

a device class of the notification sink indicating a type of device that the notification sink is;

a transmission reliability of the notification sink indicating a likelihood that the user will receive information contained within a notification conveyed to the notification sink;

5 a cost of communication of the notification sink indicating a communication cost incurred by the user when receiving information contained within a notification conveyed to the notification sink; and,

a cost of disruption of the notification sink indicating a disruption cost incurred by the user when receiving information contained within a notification conveyed to the  
10 notification sink.

#### 24. A computerized system comprising:

a user mechanism designed to store information regarding notification parameters of a user;

at least one notification source, each source designed to generate notifications  
15 intended for the user, and having parameters associated with it representing at least one of:

a) an importance of a current notification generated by the notification source indicating value of information contained in the current notification to the user;

b) a time criticality of the current notification generated by the notification source  
20 indicating time-dependent decay of the value of the information contained in the current notification to the user;

c) a relevance of the current notification indicating a likelihood of the relevance of information contained in the current notification to the user;

d) a novelty of the current notification indicating a likelihood of whether the user already knows the information; and,

e) a fidelity of the current notification indicating a loss of value to the user of the information upon truncation of the information;

5        at least one notification sink, each sink designed to provide the notifications to the user and having parameters associated with it representing at least one of:

a) a device class of the notification sink indicating a type of device that the notification sink is;

10        b) a transmission reliability of the notification sink indicating a likelihood that the user will receive information contained within a notification conveyed to the notification sink;

c) a cost of communication of the notification sink indicating a communication cost incurred by the user when receiving information contained within a notification conveyed to the notification sink; and,

15        d) a cost of disruption of the notification sink indicating a disruption cost incurred by the user when receiving information contained within a notification conveyed to the notification sink; and,

20        a notification manager designed to convey the notifications generated by the at least one notification source to the at least one notification sink based on the information stored in the user mechanism.

25. The system of claim 24, wherein the user mechanism comprises:

a database storing default notification preferences for the user as a user profile; and,



a context mechanism designed to determine a current context of the user, based on at least one context source.

26. The system of claim 24, wherein the notification manager is more specifically designed to determine which of the notifications from the at least one notification source should be conveyed to which of the at least one notification sink, based on the information stored by the user mechanism.

27. The system of claim 24, wherein the notification manager is further designed to perform a decision-theoretic analysis of the notifications from the at least one notification source based on the information stored by the user mechanism to determine which of the notifications from the at least one notification source should be conveyed to which of the at least one notification sink.

28. A computer-implemented method comprising:

generating one or more notifications intended for a user by one or more notification sources;

receiving the one or more notifications by a notification manager;

generating contextual information by a user mechanism, the mechanism also storing information regarding notification parameters of the user;

receiving the contextual information by the notification manager;

determining which of the notifications to convey to which of one or more notification sinks by the notification manager, based on at least one or more of the contextual information and the information regarding the notification parameters of the user; and,

conveying the which of the notifications to the which of the one or more notification sinks by the notification manager.

29. The method of claim 28, wherein generating the contextual information comprises generating the contextual information by a user context mechanism of the user  
5 mechanism.

30. A machine-readable medium having instructions stored thereon for execution by a processor of a notification manager to perform a method within the context of a notification system comprising:

receiving one or more notifications intended for a user as generated by one or more  
10 notification sources;  
receiving contextual information and information regarding notification parameters of the user from a user mechanism;  
determining which of the notifications to convey to which of one or more notification sinks based at least in part on the contextual information and the information regarding  
15 the notification parameters; and,  
conveying the which of the notifications to the which of the one or more notification sinks.